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9 3 0 7 0

† 3 9 4 7 √ 4

[Origin of our Alphabet.]

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BY

J. ENTHOFFER,

TOPOGRAPHICAL ENGINEER AND ENGRAVER,

*U. S. Coast Survey.*

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WASHINGTON, D. C.  
1875.

B. WESTERMANN & CO.

524 BROADWAY, NEW YORK.



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1875

[Caption of our Alphabet]

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BY

J. HINTHOFFER

Technical Engineer and Inventor

U. S. Patent Office

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WASHINGTON, D. C.

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222 Broadway, New York



## PREFACE.

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WE owe the reader, particularly men of science, an explanation as to how we came to undertake the solution of a problem which for more than three thousand years defied investigation. To take up a problem, the solution of which has in vain been attempted by the most eminent paleographers, seems rather bold, and we must confess that we should never have thought of it, if chance had not, as is often the case with discoveries, furnished us a key to it.

Whilst engaged in preparing our "Topographical Atlas," we had occasion to examine the forms of the Roman letters, with the view of ascertaining whether they could not be drawn according to some geometric construction, thus facilitating the writing of type letters; and to our great astonishment we found that the Roman alphabet is as completely constructed on a geometric, symmetrical basis as if this had been its immediate origin. (See monogram on page 37.) This result awakened our curiosity with regard to its connection with the origin of the Semit alphabet.

Primarily, a revision had to be made of the matter of paleography, the result of which showed most conclusively that our knowledge of the origin of the alphabet amounted to almost nothing. We could not adopt the usual hypothesis, least of all that which would analyze the signs ideographically, and we had therefore no alternative left us but that of seeking to establish a new system of construction, on the basis of the forms of alphabetic characters.

The first attempt in this direction was at once crowned with

success, for as soon as we endeavored to answer the all-important question, "What *could* and what *should* these signs have represented?" it became clear to our mind that the founder of the alphabet derived the forms of his signs from the different configurations of the mouth, as will become visible in forming the different sounds. So soon as we had conceived this idea, we almost spontaneously found the basis of no less than eleven signs; the remaining one-half of the Semitic alphabet became intelligible to us in that light, only after we had acquainted ourselves with Helmholtz's theory of the formation of sounds.

The reader will, in the course of the development of the letters, share our astonishment at the depth of thought and keen penetration of the founder of these signs.

Our calling as artist proved of special use in determining the original types out of a perfect chaos of ever-varying forms. The paleographer, however, endeavoring to find the source of our alphabet, followed the path of historic facts, and searched among the relics unearthed, but had as yet not struck the fundamental fragments, and nothing remained but to draw conclusions as to the origin of the letters from their shape. This task of course belongs more properly to the province of the artist, whose sense of forms is more practised, and who is not easily deceived by alterations which these forms had to undergo in the course of ages.

We looked at the forms of letters not as to what they seemed, but rather sought to find the object they were to represent, and of which they might have taken their shape. And we now say, in Wuttke's own words, "he who is not prejudiced by some wide-spread doctrine or some preconceived notion," and compares our physical diagrams with the substratum of all the forms of letters, which we endeavor to explain in this treatise, will scarcely be able to resist the convincing truth of our view, and consider it as the most natural and



rational solution of the problem. We have hesitated a long time, consulted many persons, but have not met with a single objection strong enough to shake our proposition, and we now give this treatise to the public for further examination.

In consideration of the advantages which the results of this investigation may have as a means of instruction, we have, in an appendix, added the following two treatises, informing the public of the publication of these means of instruction:

“Metamorphosis of the signs representing sounds from outlines of the organs of speech to geometric symmetrical figures;”  
and

“Practical application of the analytic alphabet as an introduction to reading and writing.”

THE AUTHOR.

WASHINGTON, D. C.





THE ORIGINAL LETTERS OF THE ALPHABET NOT REPRESENTATIONS OF OBJECTS, BUT DIAGRAMS OF THE ORGANS OF SPEECH IN THE ACT OF FORMING SOUNDS.

We know that the first attempts of writing were ideographic, a drawing being made of the object which was spoken of, and we also know that certain pictures not only represented words and syllables, but also the commencing sound for writing proper names. This was certainly the first step towards phonetic writing, but in spite of this the Egyptians did not arrive at an alphabet, properly so-called.

It was difficult to draw the pictures representing ideas and sounds; it required a considerable degree of skill and practice in drawing. We do not doubt for a moment that the wise descendant of Shem who laid the first foundation of our phonetic alphabet was, at least by sight, acquainted with the Egyptian manner of writing, but considered it much too troublesome, and therefore sought to achieve his object in a simpler way.

The chief object in order to obtain a phonetic method of writing was *to dissect the word into its constituent sounds*, and this constitutes the greatness of the thought. To substitute signs for these sounds was a question of secondary importance. We are therefore astonished to see what importance has been attached to the written signs, for most any conventional signs would have answered the same purpose. Supposing that the inventor of the signs for sounds had gone to work like the wise man who invented the numerals from a circle and two intersecting diameters, and adopted the ring for some sound, the figure one as the representative of another sound, and so forth; this would likewise have answered the purpose.\* We happy children of civilization who are able to

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\* Or in the manner of the Ogham alphabet, which has of late become legible. The character of this alphabet is numerical, with the difference that to these signs were applied sounds instead of quantity.



read and write half-a-dozen different alphabets, and are besides practised in drawing, could easily find a way how all this could conveniently be arranged, but the inventor of our signs could not easily give up the thought of suiting the signs to the idea; he knew no other way but that of depicting objects. But how could sounds, something merely audible, be graphically represented? This was thought to be impossible, and proved the stumbling-block to all investigators of the origin of our alphabet.

The oldest remnants of monumental records were rummaged, the meaning of the names of the sounds was guessed at; aye, even the constellations of the zodiac were resorted to. It is astonishing that people could be so blind, for nothing seems more natural than to *portray the object which was instrumental in forming the sound or noise*. Does not the artist depict the lightning to show us the raging thunderstorm, and the spokes of the wheels, like lines of sparks, to represent the rapid motion of a carriage? But all this lay too near, and forgetting the word of the poet, "Why ramble so far when all that is beautiful lies so near," the searchers after truth looked for it in the unlimited distance. Surely, a problem which defied solution for three thousand years must be wrapt in great darkness. It could not be solved in the style of Columbus's egg, or the Gordian knot; only by the artist's schooled sense of form the basis of construction could be found, or, in other words, the intention of the inventor of written letters be divined among the chaos of ever-varying scribble. It was of course likewise indispensable to take exactly the same stand-point as the inventor, and to look at the problem in the same light as he.

It is evident that the anatomist of spoken sounds made very searching examinations of his own organs of speech while dissecting the words into their component sounds, for the purpose of obtaining a phonetic way of writing: and as he, in accordance with the then prevalent ideas of symbols, was obliged to shape them so that every one could immedi-



ately see what was meant by these figures, it is evident that *the only thing of real value in solving the problem would be the organs of speech and their different positions.* The reason why this intention of the inventor was not sooner divined from the signs is not to be found in their seemingly arbitrary forms, but in the fact that investigators looked *everywhere else but to the source from which these forms had sprung.*

Many were also led astray by the generic names of the different letters, and would absolutely identify the name with the sign. No matter how far-fetched such identifications, gray antiquity was supposed to wrap in its mysterious folds all that seemed inexplicable and wanting. If the descendant of Shem in fixing his signs had followed the same way as the Egyptians, his whole merit would only consist in diminishing the number of signs, and in selecting such other objects as the difference of language necessitates, *e. g.*, by selecting *Aleph*, the bull, as the representative of the A sound, instead of *Asom*, the eagle, &c.

It will be easily understood that men of science in searching for the origin of our alphabet also turned to the hieroglyphics, not only on account of their greater antiquity, but also on account of the geographical proximity of the Shemites to the Egyptians. In examining their cursive letters we certainly find quite a number of signs which bear a striking resemblance to the Shemitic letters, but to ascribe this to mere imitation would be erroneous. As soon as signs are reduced to primitive lines and figures, *e. g.*, the circle, square, triangle, angle, or zig-zag lines, the similarity must become a conditional one. Exactly the same congruent figures we also find in the Chinese letters, of whose existence the Egyptians and Shemites were utterly ignorant. In case demotic signs were to be adopted, an agreement would have to be had regarding the value of the sounds. We are also of opinion that the names were given to the sounds at a much later period, and that it was by no means the intention to make these signs pictures

of the objects, but that this explanation was not given till a historical development of the alphabet was attempted; when, in other words, the signs were considered ideographic. We shall hereafter have occasion, when speaking of the development of the sounds, to enter more fully upon the comparison of the names. We consider the names of the sounds as exactly the same as in our A B C book, viz., a mnemotechnic aid to the young reader; it is even possible that then, as now, such pictures were placed near the letters, such as with A the picture of an apple or an Arab; in the Shemetic language with the *Aleph*, a bull, &c. No one, however, would maintain that once upon a time the letter had been a picture of these objects; there is only one instance in the whole alphabet where the figure corresponds with the idea, and this is *Shin*.

Many also thought of finding something mystic in the arrangement of the alphabet; but in this very arrangement we find another proof of the Shemites' physiological genius, by arranging the sounds in such a manner and order as to bring out their characteristics by way of contrast. Wuttke, in speaking of this, remarks very truly, "that an arrangement which had placed similar sounds together would only have produced confusion."

If the supposition is correct that in the beginning the alphabet only had 16 signs—which, however, has only found favor through the Greek signs which were taken from the Phœnicians—we find in the arrangement of such an alphabet in Gebelin's work that it was divided into four groups, each commencing with a vowel, the succeeding consonants being arranged in such a manner that those whose pronunciation required the greatest exertion were placed at the end. Wuttke is also of the opinion that the original alphabet is unknown to us, but that we know the characteristics of that alphabet which contained the germ of the different national alphabets, the mother of all of them.

From this view we also started. It could not be otherwise if we consider on what unsafe material the first attempts



at writing were made, and spread by copying, and how long writing may have been known before the so-called Sydonian inscription was engraved on the sarcophagus of Ashmonozar. Even if this inscription is declared to be the oldest Shemitic writing ever found, it must not be supposed that it is the most faithful copy of the original letters, *for only by comparing all the ancient alphabets the characteristic features may be ascertained.*

Every inscription bears a certain character, which is more or less of an individual nature. It must likewise be taken into consideration that the conventional character of the signs indicating sounds admitted of a greater freedom in writing than could be the case in the ideographic method, where the same picture had always to be strictly copied. This also led the Egyptians to an early use of stencilling, which explains the great regularity in their frequently recurring characters.

Before entering upon a comparison of the letters on the above defined basis, we must quote Wuttke's own view regarding the fundamental features of the Shemitic alphabet, because this learned author deserves the praise of having written the most exhaustive work on the letters of the ancients, a work which had to grapple with a vast mass of material that had to be sifted, and which contains a great number of the most ingenious ideas. This work should occupy the place of honor on the desk of every thinking man, for it contains no less than the history of the beginning of civilization. His historic quotations are of the greatest interest, and what he says on the influence of writing, particularly books, applies to his own work: "A book full of writing is a vessel filled with wisdom, and every one may"—we say, shall—"empty it."

At the end of the Sydonian alphabet, p. 717, he asks the question: "Are these figures on which the eyes rest pictures of visible objects? (See Table, column containing the Sydonian alphabet.) To every unprejudiced reader who is able

to make an independent examination of these figures, the question is directed, whether he recognizes in them pictures which may in course of time have become distorted? Even if a person recognized in one or the other of these figures some distant similarity with some animal or other object, he will as soon as he considers the *whole series* be constrained to confess that they cannot be traced back to pictures, unless, contrary to all scientific methods, the most arbitrary suppositions were permitted. How different from these figures is the pictorial writing of the Egyptians and the Chinese, which allows no doubt that it was the intention to produce visible objects. This alphabet, as we see it before us, is, we confidently maintain, composed of lines, and a certain arrangement of these lines forming a letter may easily be recognized. All these letters seem to have been formed according to a uniform system, and this also precludes the idea (merely produced by the names of the letters) that in these letters we had before us only distorted pictures, as is the case with the more recent Chinese and Egyptian letters. We see here a system of letters composed of scribbled lines only."

The great chronicler of the history of writing recognized some method which has been persistently followed; it was not, however, reserved for him to unravel these lines, and find the basis of their formation. If this experienced inquirer had only for a moment thought over the essential characteristics of conventional signs, he would undoubtedly have reached to the conclusion that conventional signs invariably have a common basis which is more or less related to the original forms, supposing, of course, that the subject had been considered in a rational manner, which was doubtless the case in framing our original alphabet, and which will be incontestably proved by our investigation.

The deviations from normal forms are of an individual nature, and must not be taken into account; all the less, as the letters were spread by making one copy from another. The ancient letter-painters or teachers of writing had cer-



tainly their individual peculiarities, just as those of our day. What did they care for the normal form or the prototype? All that was required was legibility—a flourish more or less mattered very little to them; whilst the paleographers were thereby easily led away from the right track, although their own handwriting perhaps approached more to the Arabic than to the Latin, from which it was derived.

## COMPARISON BETWEEN THE SHEMITIC LETTERS AND THE CONTOURS OF OUR ORGANS OF SPEECH.

It is evident that he who aimed to dissect words into their component sounds had to make a thorough investigation of our organ of speech in order to distinguish exactly between mere noises (consonants) and sounds, (vowels.) This was by no means the work of a moment. "Man," says Wuttke, "learns to speak long before he is able to think about the different parts composing the word." The examination of the different sounds could not be made by merely listening to the sounds in others. The great philosopher had to make these experiments on himself by intonating the sounds in every imaginable modulation, and observing exactly what part of the organ of speech gave character to the sound.

If we examine the mechanical arrangement of our organ of speech in its different parts, we see first the mouth, with its continuation, the throat, containing the ligaments between which sounds are formed; the lips, the palate, the teeth, the tongue, and even the nose, which plays an important part in forming the nasal sounds. We do not know what action of the muscles contributes to the formation of sounds, but we can easily observe the process going on in the mouth in modulating sounds. Here there is not only a visible movement, but through the resonance of sounds and noises the sensation becomes quite perceptible—of course, only if we concentrate our whole attention on it.

In investigating sounds it will likewise be evident that the contrasts and the easiest combination of the consonants, or also of the so-called mute letters with the sounds of the vowels, had to be found. Only after this had been done, a certain arrangement of the sounds in some sort of order could be attempted. That this is likewise the result of long and



mature reflection is sufficiently proved by the unchanged order in which the letters of the alphabet are arranged.

In the beginning, we must suppose that only the fundamental sounds were formed. Language itself could only be rudely constructed at a time when man made no other use of it but to make himself generally understood, and to supply his most urgent wants. The inventor of our system of letters was necessarily the first philologist and physiologist. Properly speaking, we cannot expect any great accuracy in him; and all the more astonishing is it to find that he made not the slightest error, or entertained any confused idea.

We shall now go over the different signs expressing sounds in the order handed down to us by the Shemites.

A. The first sound of the alphabet, *Aleph*, certainly owed its rank to mature consideration. It is the principal and fundamental sound of the human organ, the first sound the child utters when it attempts to speak, the involuntary expression of pleasant surprise, the normal sound which alone is sung distinctly and audibly in all accords and scales. The mere act of opening of the mouth and letting the voice go forth produces the sound *a*. The tongue, the chief organ of speech, remains flat, for if it is only raised a little the sound varies; for this reason the tongue is also called the pedal of the human organ of speech.

In order to pronounce the sound *a* (Italian pronunciation)\* in a clear and well-sounding manner it is necessary to open the mouth wide; the formation of this sound is therefore a visible one. It should be observed that the inventor of our alphabet *gave a profile or face view of all those sounds whose formation is visible, and, so to speak, portrayed the mouth or other organ of speech in the decisive position of forming these sounds.*

Looking at the profile view of *Aleph* on Table I, and comparing it with the conventional signs and letters of the oldest

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\* It is of course to be understood that in speaking of the sounds of the alphabetic characters we mean the continental pronunciation of them.

inscriptions, every unprejudiced person must grant that figure undoubtedly must have originated from some such idea. The open angle corresponds to the position of the open mouth ; it therefore only remains to be explained what the meaning of the cross line can be, and we think that this is sufficiently accounted for if we consider it either as an



indication of the teeth, (because these, with many persons, become quite visible when the mouth is opened,) or as a somewhat distorted side view of the mouth. The reader may convince himself of the complete similarity of the *Aleph* with the side view of the open mouth by looking at our little vignette, which is an exact copy in profile of the "Belle Jardinière," by Raphael, viewed in the act of speaking.

The name of this sign *Aleph* means "bull," and, as already mentioned, is intended as a mnemotechnic aid, but the interpreters of the name think that they also recognize the image of a bull's head very distinctly. We now ask those who believe in the sign of a bull to explain to us why this


sign was not drawn in a life-like position, *i. e.*, erect , and

why in a position which could only be possible in a dead bull ? It must also be considered that this position of the sign is the most inconvenient one for writing which can be thought of ; consequently this position must have been selected with some special intention, which becomes quite clear if we see in the angle the open mouth. As a proof that writing in this position is extremely difficult, we may mention the fact that as soon as the meaning of the original picture, *viz.*, the open mouth, had fallen in oblivion, the sign was changed to the more convenient **A**. But we also request those who agree with the basis given by us to declare whether the inventor of




this sign could have drawn a better conventional sign to indicate his prototype? The fact that we, in our days, after more than three thousand years, still use the same sign, will not have escaped any one; it is only necessary to place the figure in a pyramidal position, A, in order to see that its characteristic feature has been preserved.

*B.* The sound of the open mouth is followed by that of the closed mouth, the sound produced by the firmly compressed

lips,  The sudden opening of the mouth, brought about

by the explosive emphasis of emitting the breath, produces the sound B; and its connection with some vowel makes it audible. Its characteristic features are therefore determined by the lips; and how accurately these have been understood will immediately become clear if we compare the conventional signs with the profile view of the mouth; thousands of years have not been able to efface these characteristic features. It may even be said that the present form of the B shows the action more distinctly, as the two curves point more clearly to the lips than is the case in the original design, in which the contours of the lips are represented as straightened out, in order to show their being pressed together.

The name *Beth*, means "house," and we consider this word as a very suitable mnemotechnic aid, it being an object which is in common every-day use. But we ask those who maintain that the original alphabet has an ideographic basis, How, in all the world, they can see a house in this figure?

Even supposing that one would maintain that the sign 

in sharp outlines (as it is frequently found in ancient inscriptions) to be the original form, there would still be this objection, that the house has only one side wall, and could therefore not carry a roof. It cannot be supposed that in course of time it had been left out for the sake of greater convenience in writing, for this omission occurs in all the old alphabets,

and is entirely correct if we consider the figure as a profile representation of the closed mouth.

G.—The labial sound is followed by the palatal sound G, produced by the root of the tongue and the palate. In observing the action of the organ of speech, with a view of giving a graphic representation of this sound, we must confess that this could not be made sufficiently plain in the external movement of the organ. The great philosopher, however, found a way out of this dilemma, and in such a simple manner that we are surprised at the clearness of his perceptive faculties. He gives us an inside view of the organ, and, to avoid all doubts as to which portion is meant, represents nothing but the palate, as the most characteristic portion in forming this sound; it was of course necessary, in order to make the flat arch of the palate recognizable, to show at one end the front teeth and at the other the continuation of the throat. 7

If the reader will now compare the characteristic features of this sign with the diagram of *Gimel*, on Table I, and remember the conditions for forming this sound, he must confess that the problem of finding a simple sign has successfully been solved, in a quite rational manner, for we must not lose sight of the fact that the great merit of alphabetic signs is their simplicity, as the inventor was desirous to enable every one without an artistic education to write down his thoughts.


We must, however, take notice of an objection which has been urged by some, viz., how it was possible to suppose for a moment that the inventor of these signs had any correct ideas of the anatomy of the human body. This objection was in all probability called forth by our section of the human head, which was intended to illustrate the position of the organs of speech. We do not wish to maintain that the Shemite made use of just such a diagram in order to represent this sound by a sign; this was not even necessary, for the organs of speech in question are completely within reach of our observation.



Those who doubt that, at the time when a written language was invented, men were able to explain their ideas by drawings, forget entirely that the art of drawing preceded the art of writing by many centuries. As a proof of this assertion, we may cite the much older architectural monuments which certainly could not have been built without mature plans, showing shape and dimensions, for the guidance of the constructor and his assistants.

This also proves that at that period some kind of a material must have been in existence upon which such drawings were furnished, and which was consequently also serviceable for writing purposes. It is, therefore, rather odd to read the assertion that writing in the beginning was practised upon rocks and walls *only*. Those inscriptions, of course, are the only ones which withstood destruction.

We will now examine what relation the name *Gimel*, which means "camel," bears to the figure of the letter. In accordance with the ideographic explanation, the shape of the letter should resemble at least a part of the body of the above-mentioned animal, *e. g.*, the head and neck. We know that both the hieratic and the demotic hieroglyphics, however much they might be abbreviated, always consisted of more than one simple line, that were more or less representations of bodies. But to find in this figure the picture of a camel is taxing the imagination too much. If the name were not pronounced, no mortal being would ever think of a camel, whilst the outlines of a drawing representing the palate and throat in a side view may easily be recognized in this sign.

*D.*—The palatal sound is followed by the dental sound D, which is produced by leaning the tip of the tongue against the upper teeth,  thereby shutting the hollow of the mouth


completely. By emitting the breath, the D becomes audible in connection with a vowel. The production of the sound of this letter, as with its predecessor, is therefore an internal act, and the inventor of the alphabet had again to have recourse

to a sectional side view of the organs of speech in order to make it visible to the eye of the observer. A comparison of the oldest forms of the D with a sectional side view of the *Daleth* will completely justify this view.

The name *Daleth* is said to mean "door." It would be lost time to enter into a discussion whether this letter has ever had any similarity with a door.

*E*.—The fifth letter of the Semitic alphabet is E, named *He*. In order to produce this sound, which belongs to a higher scale than *a*, it becomes necessary to raise the tongue, which lies flat in pronouncing *a*, particularly in the middle towards the roof of the mouth, with the tip towards the edge of the teeth in the lower jaw. Hereby the waves of sound are compressed whilst going out, and the sound *e* is produced, just as in a wind-instrument the sound is intensified by closing the keys. (Helmholtz.) (See Diagram *He*.)

We have already mentioned in the preface that the very origin of our alphabet, as well as the first specimens of writing are unknown to us; but that we are well acquainted with the aboriginal alphabets of the different nationalities, and consequently it must be considered a well-founded supposition that the one or the other letter might still resemble, or in other words may have preserved, the original shape. As, for instance, may be the case with the two ancient signs for

the letter *e*,  of which the curved one, according

to inscriptions, appears to be of later date, but nevertheless more closely adheres to the original construction, for the reason that the configuration of it is far more in accordance with the basis adopted to represent the signs of the sounds in harmony with the positions of our organs of speech. And judging from the characteristic of the right-angular sign, this may rather be taken as a more recent delineation, *i e.*, conventional design, of the curved letter.

Inasmuch, however, as both answer to the requirements of the sounds, it is immaterial to trouble ourselves about the



priority of the one or the other sign; all that is necessary is to show that the circumference of the sign represents the inner mouth; the little stroke balancing in the middle: the tongue and the end points at the curve represent the teeth. The latter portion of this characterizes the whole sign, by referring us back to the mouth.

With regard to the characteristic middle line, which naturally represents the tongue, we must say that no other way was left, even for a conventional design, but to place it in the middle. It is remarkable that just thereby we get a deep insight into the inventor's correct idea of the formation of sounds, for if we examine the raising of the tongue in forming the sound *e*, we find that the tongue—the pedal of the human organ of speech—is raised exactly half-way between the palate and the resting point of the root of the tongue. This exact agreement of the sign, expressing the sound with the requirements of the formation of the sound, is by many considered as a mere play of chance rather than the result of study. (See diagram.) The name *He* has no meaning. The prefixing of the spiritus asper before the sound *e* shows that the Shemites had the same costume which still prevails in French and English conversation.

*F*.—The sixth letter, called *Waw*, is a labial and blowing sound. The lower lip is pressed against the upper row of teeth in order to leave only a narrow passage for the air, the upper lip is pushed forward, and by the friction or refraction of the air against the upper lip the blowing sound *F* is produced. If we compare the outwardly visible movement of the mouth with the characteristic features of this sign, (see Table, representation of the *Waw*,) it will be seen that by this figure the author wished to show that the sound depends upon the protruding upper lip, and could not have been represented by a more suitable conventional sign.

But we find that the same sign was also used for the *w*. An investigation of the position of the mouth whilst forming this sound gives exactly the same result, and the difference between

the *w* and the *f* is so small, that there are nations which consider one sign sufficient to represent this sound, *f, w, v, e. g.,* the Hindoos, the Russians, (Wuttke.)

The name of this sign in the Semitic language is *Waw*, and in the Hebrew *Wawe*, and in the last-mentioned language is said to mean a peg. Our sense of the beautiful—aside from the insignificance of the object—forbids us to take this representation as a type resembling the peg.

*Z.*—The seventh letter, *Zajin*, of the Shemitic alphabet, will be spoken of, together with *Shin*, in the dental sounds.

*H.*—The eighth letter, *Cheth*, represents the spiritus asper and guttural sound *ch*. The fact that one and the same sign represents these two sounds, is, as with *f* and *w*, a strong proof that the action of the organs of speech in forming these sounds was thoroughly understood, the guttural sound *ch* being only an intensified breathing sound. The mistake of using one sign for the two sounds was not possible, for the common use of the language knew how to find the right one in each case, just as even in our day no difference exists in the German alphabet between the I and the J.


In order to understand the characteristic of the sign for the sound of the spiritus asper, we must explain the conditions of said sound. "If in emitting the breath its strength is suddenly increased, which is done by narrowing the glottis and opening the mouth wide, thus letting as much air pass as possible, all the organs forming the sound stand far apart, a strong, but mute breath is produced, the non-sounding H." (Wuttke.)

Now, according to our basis of constructing the signs of sounds in conformity with the position of the organ of speech, the reader will easily perceive that it is impossible to notice a difference, as far as the position of the mouth is concerned, between *a* and *h*; and therefore it must have been a hard task to find an object by the delineation of which the former could be distinguished from the latter.

If, however, we pursue the path of investigation in regard



to the sounds, we come to the same result as the definer of our alphabet. Now, we know that the non-sounding *h* is a mere breathing; the next question, therefore is: Which noise comes nearest to it? and we find that the blowing of wind through a narrow space is very much like the noise of breathing. With the narrow space we are already very familiar in the windows giving light and air to our rooms. Of course we must turn our thoughts or imagination to that ancient time when, in want of glass-plates, such windows could be only of a small size, having a bar across to prevent intrusion



from outside. Looking now to the sign  we are struck with the simplicity of the solution of this apparently so difficult question. No one can dispute the correctness of the picture of a window in the sign representing the *spiritus asper*, and it would be difficult to find a better image for the breathing sound than the current of air passing through a narrow window.

The meaning of the word *Cheth* is by some author translated with fence; of course we could take the simile as a part of a fence, but we could never find a representative of sound in it. The comparison is unquestionably of an ideographic character.

*Th.*—The ninth letter, *Teth*, has only been adopted in the Greek, but not in the Latin alphabet, because the latter had no use for it; this letter, however, would be well suited to the writing of the English language.

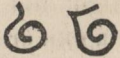
This partly lisped and partly guttural sound can only be properly pronounced by inserting the tongue between the teeth.

If we compare the two conventional signs for this sound

  with the representation of the *Teth*, showing


the action of forming this sound, it must be confessed that the wise Shemite met the difficulty again in a masterly man-

ner, the one sign giving a front and the other a side view of the open mouth, with the tongue inserted.

There are doubts regarding the meaning of the word *Teth*, some understanding by it the serpent, and others the fist, both imagining to see in it a correct representation of their object. This explanation, however, can only refer to the Phœnician or old Hebrew *Teth* 

Any one who has some knowledge of the variations of letters can easily recognize these signs as innovations, which are chiefly occasioned by a desire for greater convenience in writing, for it is obviously easier to make this snail-like figure than a circle or an oval.

*J.*—The tenth letter, *Jod*, which also stood for the vowel sound *i*, appears in the Canaanite and Phœnician alphabet in two shapes: first, if we acknowledge the Sydonic inscriptions

as the oldest, in the shape of the two lower front teeth, 


and secondly, in the shape of a single perpendicular stroke. The double meaning of this sign has clung to it to the present day. But before entering upon the explanation of the merit of these signs, and to the priority of either one, we will examine first into the requirements and conditions of the seemingly more recent letter, viz., the simple line. In consideration of the higher importance of the vowel sign *i*, we might take it for granted that the inventor of our alphabet had first provided for the vowel by that simple line, and then made another sign for the consonant *j*, and that only in after time one and the same sign was constituted for either use.\* In order to arrive at a solution of the problem we must again examine

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\* In taking the single straight line as the original type, we have to explain its disappearance during a certain period. Formerly a straight line was also used to divide one word from another, and thus the single line as a letter might have been mistaken, and therefore the sign *j* was substituted also for the sign *i*. As soon as this mode of distinguishing words had been abandoned, the single line reappeared, signifying also, like the former sign, both sounds, *i* and *j*.




into the conditions of producing the sound of *i*, and that of *j*. To produce the highest vowel sound, *i*, it is necessary to raise the tongue quite close to the roof of the palate; by thus narrowing the passage for the air, the *i* sound is produced, (see diagram of the *Jod*,) and by shutting out the air the resonance becomes all the more preceptible in the inside of the mouth, and is therefore felt very considerably through the channel of the nose. Under these circumstances, the inventor of this letter might well have hit upon the idea to select the outline of the nose as the nearest and best representation. The sign in an ancient Hebrew alphabet illustrates this supposition

best.  In order to justify this supposition we ask the reader to repeat the *i* sound several times in succession, and to pay attention to the accompanying sensation in the nose, for only by making the experiment on one's own person can the correctness of our assertion be proven. If the reader has convinced himself of the considerable resonance in the nose, the conventional representation of the nose by a simple line will not create surprise, for he has undoubtedly seen such primitive representations of this part of the face innumerable times, and has probably drawn it thus with his own hand, when in the artistic aspirations of his youth he vented his feelings by drawing sketches on slates or walls. Even if one or the other of our readers should have entirely forgotten this artistic epoch of his youth, we hope that the primitive drawing of a face in our table will recall to his memory those happy days.

Now let us see if we succeed also in the explanation of the characteristic sign for the consonantal sound of *Jot*.

The consonantal noise of *j* (continental pronunciation) belongs partly to the dentals and partly to the gutturals. It is produced by pronouncing *i* and *e* together. We know that in pronouncing *i* the tongue has to be raised almost high enough to close the inner mouth, the point of the tongue resting on the lower teeth. In order to produce the gentle *J* sound the

mouth is very little opened, and thus the air is forced over the lower front teeth,  participating in the vibration of the sound. This circumstance leads us in the detection of the meaning of this sign. We notice the same characteristic for the linguæ-dentals in "*shin*," with the only difference that here the upper front teeth help to produce the sound. All that is left to be explained is the extended line in front of the sign. We are unable to detect any reason on the basis of forming the sound. We are forced to suggest that this mark has no other meaning than to give this sign a more graphic distinction from the sign of "*shin*." It also might be taken as an improvement made for better distinction in after time.

The name *Jod* means "hand." We therefore see again in the choice of the name the consonantal character of the letter. This arrangement, however, may possibly only show the intention to draw attention to the minority value.

The comparison, in an ideographic sense, is very far-fetched, and does not at all agree with the pedantic representations of numbers in the ancient drawings. In default of a proper understanding of the perspective, they clung all the more to numbers. This painful regard to quantities in the ancient drawings is very amusing. Where, *e. g.*, perspective does not allow the representation of some indispensable details, one member is drawn behind the other in spite of its unnaturalness; thus we see in a picture representing a three or four-horse team all the feet of the horses in a row, so that it looks as if the feet of the hindmost horse grew out of its stomach.

This painful clinging to the details makes it impossible to explain the sign for the *jod* sound as the picture of a hand, for it would surely have five fingers instead of three.

*K.* The eleventh letter, called *Kaph*, is by some paleographers considered as a supplementary letter, for it is generally supposed that at the time when written letters were first used no such nice distinction was made as is existing




between the *K* and the *G*, and that the latter may well have sufficed. We could not ascertain on what this opinion is based; but this is certain, that the *K* occurred already among the 16 letters of the Semitic Greek alphabet, as well as in the Sydonian inscriptions, which contains 22 letters.

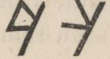
Wuttke says with regard to the formation of the *k* sound: "*g* and *k* originate in the opening of the mouth by the rapid emission of air occasioned by the raising of the root of the tongue, thus approaching the tongue to the middle of the hard palate and pressing against it, till the air, pushing forward, produces a sufficient tension, and thereupon the air of the breath, which has been kept back for a moment, rushes out of the quickly-opened mouth with a noise as if something was torn abruptly. *K* requires a stronger and quicker pressure in emitting the breath than *g*."

If we compare the conventional sign with the picture of *Aleph*, and call to mind how the Shemite found a way out of the dilemma in constructing the palate-sound *g*, we must confess that it must have been exceedingly difficult to construct the closely-related sound on the principle of the position of the organs of speech in a sufficiently distinct manner.

In *g*, the palate formed the basis, as likewise in *k*, with the only difference that the closing up of the breath in the opening of the mouth is more complete. Nothing remains, therefore, but to seek the explanation of this difference in the formation of the sound in the figure representing the sound.

The upright line, which represents various details, likewise appears here, and has already been explained as the throat-line. In *g*, the palate was added to this throat-line; but in order to express the above-mentioned difference in the formation of the sounds, a drawing of the well-known mouth


picture is required, viz., the angle, as in *a*,  but to show that it is closed up, the opening of the mouth is closed by a

line, as in the following figure:  If we now add the throat-line to the end of the mouth, we get the conven-

tional sign for the formation of the *k* sound. In this form the *k* appears not only in the Sydonian, but also in other inscriptions; and if later we see the same sign without the closing line, this can only be considered as an abbreviation common in writing.

The meaning of the word *Kaph*, "bent hand," can afford no explanation of its form, and we even doubt whether this explanation could ever be thought of, because it would seem too absurd to have such an idea represented in an alphabet.

*L*. The twelfth letter, called *Lamed*, is a lingual sound. As in *d*, the tongue is pressed against the upper row of teeth, but remains in this position till the air passing by produces that oscillation along the edges of the tongue which makes the *l* sound. This oscillation, which is the most essential element in the formation of this sound, could be represented in no other way than by delineating the tongue in a state of undulating motion.


Comparing the conventional sign for this sound with the diagram  we see the intention very clearly expressed.


The name *Lamed* has by a paleographer been translated as "staff," such as are used in the East to drive cattle. This explanation as a mnemotechnic aid is too prosaic, and the figure certainly has not the slightest similarity with that object.

*M*. The thirteenth letter, *Mem*, is a labial sound, like *b*, and therefore distinctly visible to the eyes. A comparison of the conventional sign with the diagram does not leave the slightest doubt that the author wished to give us a front view of the organ of speech whilst forming this sound. The *m* sound is formed by pressing the lips against each other; but as the same action occurred once before in the *B*, the position had to be changed to make the difference more distinct.

The name *Mem* has by ideographic commentators been derived from *Majim*, which in the Semitic language means water. It will be seen that the abbreviation has been adopted




in order to make a comparison possible between the sign and the object which it represents, and the upper outline of the *m* 

is explained as a representation of waves. If the inventor of the alphabet had had this idea in his mind, he would in all probability have reached the same result which we meet in the hieroglyphics, where the sign  represented water, and

also stood for the commencing sound of *n*. That the two wave-like lines had nothing to do with water becomes clear by the lower curve showing the outline of the chin, for all these lines are easily explained if considered as a representation of the mouth. It must here be mentioned that in the original alphabet we meet with no superfluous lines and flourishes, which only came in after writing had become a professional practice. In the old alphabets every line had its significance; but only their characteristic features must be taken into consideration, without being led astray by the stiff or wavering execution, for practice, tools, and writing-material have a very decided influence on the looks of writing.

*N*. The fourteenth letter, *Nun*, is the strongest nasal sound of this class. When the ligaments between which sounds are formed vibrate strongly with the passing breath, and the channel of the mouth is closed by the soft palate, its muscles being as it were relaxed—falling down in the lower part of the throat, and the tongue, being raised, covers with its back the whole of the soft palate, without leaving an opening—the width of the opening of the mouth is of no consequence. The only way by which the emitted sounding air can escape is the nose. The curtain which separates the nose from the mouth has been drawn back with the palate, and as the direction of the air is thus changed, it escapes through the opened hollows of the nostrils. Then we hear (supposing that the nose is not stopped up) the pure, strong, non-nasal *n*. (Wuttke.) If the reader has examined the diagram for *Nun* and compared it with the characteristic features of this sign,

before reading how the sound is formed, as mentioned above, the intention of this sign may not seem very clear to him. But after having read the above description every one will involuntarily recognize the nose, which is the predominating element in forming this sound, as its best and most appropriate

representation,  for the picture of this organ will undoubtedly remind the reader of the characteristic features of this sound.

The name *Nun*, which means "fish," would only have sense if this strongly-twisted figure was intended for an eel.

*Sz.* The fifteenth letter, *Samech*, will be explained under the *Shin*.

The sixteenth letter, *Ajin*, is the last vowel of the Semitic alphabet. The sound is modulated by compressing the lips to a round opening, compared by Helmholtz to the mouth of a bottle. In pronouncing this sound, the position of the mouth is so significant that there cannot be the slightest doubt regarding it. If we examine the picture of the mouth in the act of forming the *o* sound, and compare it with the oldest forms in the old alphabets, we find a very exact representation of the opening of the mouth, only too carefully guarding in the conventional sign the outlines, as if afraid that the circle or rhomb might be considered as a geometrical figure, and not as one representing a sound. Practice was permitted to make the transition to the round form.

The name of this sign is *Ajin*, and means "eye." We must confess that we think the choice of this word very suspicious. How does it come that for this sound a word was chosen which did not have the representative initial for its commencing sound? Could this circumstance perhaps be considered as proof that the person who named this letter could find no word commencing with *o* which was suited to his ideographic explanation? The very circumstance that the orthography of the *Ajin* is not suited to the vowel-sound *o* is one of the strongest proofs that the mnemotechnic names




of the letters were *not* given by their inventor. We hold that, at the time when names were given to the letters of the alphabet, the true basis from which these signs originated had already fallen into oblivion.


*P.* The seventeenth letter, called *Pe*, is, properly speaking, only a hardened *b*, or, in other words, *b* and *p* are only variations of one and the same sound, only distinguished by the smaller or greater force employed in producing them. The emission of the breath in pronouncing the *p* is more vehement, and the lips are opened a little wider than in pronouncing the *b*. In pronouncing *b* the lower lip is more active, and in pronouncing *p* the upper lip. (Wuttke.) In comparing the conventional sign for *p* with that of the closely-related *b* sound, we ask whether we do not see the evident intention to use the same prototype, with the only difference of leaving out the lower lip? But we must also grant that this simile only becomes distinct in the more modern form, whilst in the old signs it was expressed only in a very vague manner. We are also of opinion that the sign for *p* belongs to a much later period. It can scarcely be supposed that in the very beginning, when the letters were invented, such a nice distinction existed between the *b* and *p*. Such problems can only be solved by finding the most ancient inscriptions.

The name *Pe* is said to mean "mouth;" if we consider that the names of the letters are to serve as an explanation by depicting some object, this coincides for the first time, at least to some extent, with our view, in as far as the lips form part of the mouth. This explanation, however, applies—as has been said above—to the modern or Hebrew letter, but not to that of the Sydonian alphabet.

The eighteenth letter, *Ssade*, will be treated under *Shin*.

*Q.* The nineteenth letter, *Qoph*, is again the *K* sound somewhat hardened, for which reason it was also called the cracking *K*. These different degrees of sound from *G* to *K* and from *K* to *Q* point to a considerable refinement in pro-

nunciation and manner of writing; and as this sign occurs already in the Sydonian alphabet, we may suppose that written letters had existed long before this time; but that the *Q* was only a deviation from, or variation of the *K* is best expressed in the Greek name from *Kappa* to *Koppa*. The pictorial relation of these two signs is very evident and incontestable, for we have only to turn the *Kaph* sign 

from right to left to get the *Qoph* sign  No significance must be attributed to the slight difference, viz, the loop, beyond the greater convenience in enabling the writer to make this sign in one stroke.


In modern writing, the *v* was affixed to this sign to show its difference from the *Ka*, for the sound is a contraction of *Kv*. We know how this *v* was later changed into *u*, so that now we write and speak it *qu*. The German pronunciation is *Kwe*.

The name *Qoph* is said to mean "ear." It would be waste of time to trace any similarity between this sign and the ear.


*R*. The twentieth letter, *Resh*, is the noisiest of all the sounds of the alphabet. The sound most closely related to it is the *L*, which children frequently substitute for the *R*, which they cannot well pronounce. In pronouncing the *R* the current of air is periodically interrupted by the vibration of the soft palate or the tip of the tongue, and we therefore get an intermittent sound, whose creaking character is produced by these very intermissions. (Helmholtz.)

We mentioned under *L* that the figure expressing the action of the organ of speech can only bear a relative resemblance, and if the oscillating motion in *L* was expressed by a wavy line, we must in *R*—where the vibration is considerably stronger—look for a figure which makes this characteristic of the sound visible to the eye. An object approaching the sound of the *R* is the wheel, which, when in rapid motion, makes a rattling or whirling sound. If we now compare the



conventional sign  with the wheel we must confess that the selection was a very happy and practical one.

The word *Resh* is said to mean "head."


*S*. The twenty-first letter, *Shin*, is again one of those instances which may well be termed ingenious in the highest degree. The pictorial representation of this sound is so indisputably clear that even its nomenclature could not get on a wrong track, for every one can recognize nothing but the front teeth in this sign,  (See diagram.)


The *S* sound is a dental and hissing sound. The Semitic language required several variations of this sound, and therefore has four, of which the Western languages, however, only adopted two.


The sign of the *Shin* seems to have been the matrix of all the hissing sounds. Although the Semitic *Shin* corresponds with the German *Sch* or the English *Sh*, its chief characteristic is, after all, the *S*. The *s* sound is formed by approaching the tongue closely to the teeth, and by letting the air pass through very rapidly in a spoon-formed or pointed shape. Persons who have no front teeth can only produce this sound in a very imperfect manner.

In comparing this picture of the mother of all the hissing sounds with the picture of the front teeth, it is impossible to ignore the intention of the inventor, which was to draw attention to the character of this sound.

If we consider the figures of the different variations of the dental and hissing sounds, we see clearly that they are only variations of one and the same sign, but of more recent construction. This latter circumstance leads us to the conclusion that these variations must be considered as supplement-


ary letters, particularly of the more recent form,  which owes its existence to the convenience of writing. Thus,


the seventh letter, *Zajin*, our Z, has undoubtedly been constructed from the *Shin*. A glance at the *Shin*  and

*Zajin*  is sufficient to show this. Every one may see that this variation of the closely-related sound was intended by leaving out the final stroke.

Its name is said to be derived, as one author says, from *Zaino*—arms. This same author is fortunate enough to recognize in this figure the shield and sword.

The fifteenth letter, *Samech*, is said to have corresponded to our S. This sign is the *Shin* complete, with an additional

stroke  The same author who, in the sign for *Sajin*, recognized arms, sees in that of the *Samech* a sort of furniture which he calls "*Gelage*"—Latin, *accubans*. This is only another proof of the fact that a person sees that which he desires to see and which his imagination depicts.

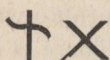
The eighteenth letter, *Szade*, is said to have answered to the German *Sz*. Who would not recognize in this sign  the

same *Shin*, with the additional stroke at the end instead of the beginning? Its name is said to signify "beard," and the above-mentioned author maintains that a full beard can be distinctly traced in these outlines. We think it very remarkable how any one could mistake one and the same sign merely on account of a small addition or omission.

*T*. The twenty-second letter, *T*, is the final letter of the old alphabet. The *T* sound is merely a hardened *D*, and probably of more recent origin, although it already occurs in the Sydonian inscriptions. We base this supposition on two characteristic circumstances: First, the shape of the *T* does in no way resemble its relations, the *D* sound, as closely as the *B* the *P*, the *G* the *K*, *K* the *Q*, &c., and the variations of the hissing sounds; and, secondly, the name corresponds so exactly with the sign, viz., *Taw*, (mark,) that from this the



conclusion might be drawn that the *T* sound had been created shortly before or after the mnemotechnic name of the sign, when the source from which this sign sprang was still fresh in the memory. The sign for the *T* sound is nothing

else but a mark  —a cross. This sign was used

amongst Egyptians in very ancient times, not only to mark property, but also for signing documents by persons who were not able to write their names. As mentioned above, the name of such a sign was *Taw*, which was adopted as a letter of the alphabet as soon as a special sign for this hardened sound was considered indispensable.

If we have succeeded in showing that the position of the organs of speech is the basis on which the letters of the alphabet are constructed, the object of this treatise has been reached. We endeavored to explain in a perfectly natural way this most important and influential discovery of human genius, by which alone civilization became possible. These signs could just as little have originated from the air as from the stars.

It is our opinion that the natural way of constructing the letters is the one which does the greatest honor to the ingenuity of the inventor, as it bears testimony to his ability of observing in a rational manner. What better prototype for expressing sounds by signs could have been found in the whole universe than the organs of speech? What objects would have been better calculated to impress upon the memory the sounds than the outlines of the different positions of the mouth? If any one makes the objection that the signs are too rude to lead to the right source of construction, we answer, that even if the originals had been finished in a Raphael-like manner, they would finally have changed to these rude forms, because, after the art of writing had been introduced, simplicity had a far greater value than an exact imitation of a copy. As soon as the meaning of a sign was once known, the conventional sign was sufficient for fulfilling its object.

In considering the gradual improvements in the forms of the letters from their first commencement to their present height, we cannot ascribe this beautifying of the forms merely to the development of good taste, but the writing-material and the instruments with which people wrote had a vast influence on this change of form. There is an immense difference between the style with which figures were executed in leather, clay, wood, or palm leaves, and our smooth paper and elastic steel-pens. We are inclined to think that the lion's share in the merit of having shaped the letters belongs to the writing-material, or if this should hurt the vanity of chirographers, we will say that the improved writing-material enabled them to shape the letters in a better manner.



METAMORPHOSIS OF THE SIGNS REPRESENTING SOUNDS, FROM  
OUTLINES OF THE ORGANS OF SPEECH TO GEOMETRIC  
SYMMETRICAL FIGURES.








A glance at the annexed monogram will convince the reader that we do not wish to draw his attention to the art of writing, but to the very remarkable circumstance that in this geometric symmetrical figure the Roman alphabet is contained not only incidentally, but with mathematical certainty. No one has as yet paid attention to this, because one scarcely thought that there could be any other harmony between letters than certain relations of proportion with regard to their height and breadth. If we had not proved in the preceding treatise that the signs representing sounds had been taken from the organs of speech in the act of forming these sounds, we would have to suppose that our alphabet had been built upon this geometrical basis. But if we examine the transitions from century to century, a striving after regularity becomes perceptible, which finally led to this harmony, although the reformers of writing made their changes both in size and shape in every individual letter, regardless of the relation they might bear to each other, because such a relation was scarcely thought of.

In order to make the symmetric relations clear, it is above everything else necessary to subdivide the monogram into its characteristic features, or sub-monograms. The first division

gives us the rectilinear and curved figures



If we again subdivide these we get the following five monograms: the rectangular, diagonal, zig-zag, ring, and serpentine letters.

Rectangular		I	L	F	E	H	T
Diagonal		X	Z	K	L	Y	
Zig-zag		A	V	M	W		
Ring-shaped		O	Q	C	G	D	
Serpentine		S	P	B	R	U	J

The reader will inquire how this geometric construction is connected with the configuration of our organs of speech, which is the prototype of the letters. This problem is very easily solved by the fact that simple forms striving after regularity generally resolve themselves into primary figures. In the same way the harmony in the shape of the letters explains itself, as a necessary consequence of the morphologic law, which rules not only all the beings of the universe, but even regulates the course of human ideas; for whatever the human mind may invent, and however complicated its creations may be, produced on every field of human activity, consciously or unconsciously, if only guided by the innate sense of the beautiful, they will always agree with the morphologic law; all the more if the prototype itself is descended from one of the noblest products of creation. It is evident that in an organic body proportionality is not confined to outward forms, but that the whole system works together harmoniously.

As the inventor of our letters selected a part of the human body as the basis on which to construct his graphic represent-



ations, viz., that part which is directly engaged in producing sounds, these signs must necessarily be symmetrical and harmonious as soon as the æsthetic sense of the beautiful endeavored to reduce these rude figures to true proportions.

The proportions of our letters do, of course, no longer relate to those of the organ of speech; but as they become in all respects a geometric figure, as is shown by the chief monogram, we can henceforth only speak of a geometric construction. And as this resolves itself into simple monograms, a very simple analytical alphabet has thus been furnished for the first reading and writing apparatus.\*

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\* In press: "The Analysis of the Roman Alphabet, as first introduction to reading, accompanied by a copy-book, methodical writing," as first introduction to writing.

PRACTICAL APPLICATION OF THE ANALYTIC ALPHABET AS  
FIRST INTRODUCTION TO READING AND WRITING.

By reducing the whole alphabet to five simple and well-known figures, we are enabled to use the reading and writing apparatus very advantageously as an aid to instruction. But in order to make this plausible to the beginner we have also analyzed the basis on which the Roman capital letters are constructed into its component parts, and arranged them in a table in such a manner as to make the respective parts easily recognizable.

The teaching apparatus, or the so-called A, B, C, consists of the above-mentioned five monograms, and a finger alphabet, which, with the exception of a few signs, agrees with the well-known deaf-mute alphabet of Abbé Vaïsse, who represented the sounds by the different positions of the fingers, only deviating from this principle where imitation seemed to him impossible. We found, however, no difficulty to express, as far as admissible, all the capital letters by the fingers. We must say that it was not our intention to correct the deaf-mute alphabet, but only to aid the memory by a process which to children will be an amusing change. If this way of spelling has become general, there is not the slightest doubt that this mode of communicating one's thoughts will come into practical use, *e. g.*, for speaking with any one at a distance, or in places like mills, foundries, railroads, &c., where the voice is drowned by a loud noise.

It is of course understood that the phonetic qualities of the letters are first explained to the scholar, to be followed by the table giving the component parts of the letters and the monograms, thus showing their mechanical composition. This way of proceeding, which is quite in Fröbel's spirit, will prove very amusing to the children, and by thus building up the different letters their shapes will be indelibly im-



pressed on their minds. Older people do no longer remember the difficulty and exertion which the study of reading and writing required, but we can get a taste of it as soon as we begin to learn an alphabet the characters of which are unlike those of any language, and see what time it takes us till the eye gets accustomed to new forms, so as to be able to read them fluently. The trouble it costs us to study, *e. g.*, the Sanscrit, the Arabic, or the Russian alphabet, cannot be compared to the child's trouble in studying his A B C; first, because our perceptive faculties are more practised, and then because we are already acquainted with different alphabets.

To explain our plan more definitely we will, by way of illustration, relate the proceedings of the first lesson. We first draw on the black-board a house and a window, the latter of the same shape as the monogram. Of course every child is familiar with these drawings. They answer to the first and second questions without fail.



Then we say to the pupils: As you are so well acquainted with these designs, it will then be very easy to you to keep parts of it in your memory, and to recollect that parts of these outlines compose the shape of 6 letters, commencing with I, and so on, as already mentioned.

The next lesson consists of making words with these six letters, having them printed in large size and on single cards, thus allowing all sorts of composition. Now, by mechanically constructing these words before the children's eyes, they obtain an inside view of *how* and of *what* words are made of; finally, small phrases are made of these words.

Just as the analytic alphabet is intended as an aid to the first attempts in reading, in the same way do we propose a methodic manner of writing in connection with the reading, not, however, with the intention to precipitate the child's studies, but in order to produce some change in the activity of his frail mental powers. With a view to these frail mental powers and to avoiding all over-exertion, the writing-exercises

here proposed have been so arranged that it is not an instruction in writing according to the customary method, but drawing on a prescribed line. It has hitherto been ignored that drawing comes infinitely easier to a child than writing. The former is not only the more natural way, but the forms of the Roman capital letters are—on account of their simplicity—easier to imitate than the letters with which instruction in writing usually commences, which require a much more skilled hand. The whole system of drawing the printed letters is not only to serve as an introduction to writing, but is to contribute its share towards impressing the letters of the alphabet more firmly on the memory.

The first step in letter-drawing is taken immediately after the signs for the sounds have been composed on the monogram table. The component parts of the letters are taken out of the monogram in the same order as they were put together, one piece after the other is placed on the slate, and their outlines described with a pencil.

This would, properly speaking, be nothing else but a repeated mechanical building up of the letters. Then the child begins to fill out the printed monograms; of course only those portions which are required to give the outlines of the sound in question. This filling-out is done with a lead-pencil, so that errors may be corrected, or the whole be rubbed out.

In the same copy-book the change from capital to small letters is treated of, going step by step till the present way of writing—of course only Latin characters—is reached. We do not hesitate to let instruction in the writing of these characters precede that of the German characters, because on account of their simplicity they are infinitely easier than the German, which are only a distorted variety of the Latin ones; all the more, as the Latin letters will have to be learned at any rate at some future time. In this way the easier letters would only precede the more difficult ones.

This copy-book has likewise been arranged in such a manner as not only to serve as first introduction in letter-draw-



ing, but also as an exercise for the higher classes, in which the scholars are to practise the so-called map-letters, an art which in our days is not only required in many technical but also in many industrial branches.



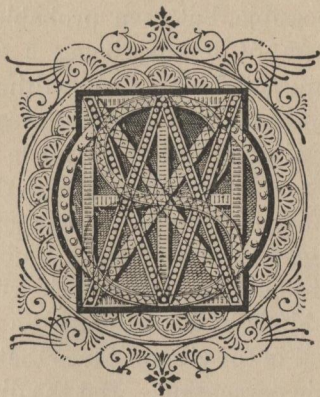


Physical	Conventio- nal	Successive change of form								Physical	Conventio- nal	Successive change of form							
 Aleph		Syd.	Ph.	Gr.	Gr.	Etr.	L.	Mod.	 Mem		Syd.	Ph.	Gr.	Gr.	Etr.	La.	Mod.		
																			
 He									 Nun										
																			
 Jod (i)									 Lamed										
																			
 Ajin									 Gimel										
																			
 Beth									 Daleth										
																			
 Waw									 Teeth										
																			
 Teth									 Wheel in motion										
																			

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Abbrev. Syd. Sydonic Inscription Ph. Phoenician - Gr. Greek - Etr. Etruscan - La. Latin - Mod. Modern Letters.





## APPENDIX

### *To the Origin of our Alphabet.*

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It is now fifteen years since the first edition of this treatise was published. At that time I sent it to some recognized authorities in archaeology and paleography to have them pass their opinion on it. All of these scientists agreed that the theory advanced by me rested on a very rational basis, still they could not make up their mind to ascribe to the originator of the so-called Phenician alphabet on this basis the solution of this problem. Most of them at that time inclined to Rougé's view, namely, that the Phenician letters owed their origin to the *hieratics*. This supposition was accepted without any examination, as at the time but few persons were sufficiently acquainted with the system of hieratic letters. They were, therefore, not prepared to enter upon a further investigation, and because the old and convenient opinion prevailed, that everything must have its Adam, and that every phenomenon must, without going into



a close examination, be considered as descended from the first creation.

It is not only possible, but even probable, that the originator of our system of letters, being a neighbor of the Egyptians, was acquainted with their writings. But even if he was able to read them, this does not presuppose that for the purpose of forming his letters he made a selection from their alphabet. From an unbiassed comparison between the Phœnician letters and the hieratics we cannot discover a similarity strong enough to prove beyond a doubt the correctness of Rougé's supposition. The fact that the characteristic features of these two kinds of letters suggest a relation between them, must be found in the circumstance that both originated upon an ideographic perception. But the difference between the languages excludes any use of the same symbols. Even the hieratics, though descended from the hieroglyphics, in many cases avoid the original symbols, with the view to facilitate as much as possible the practical execution of the letters, and it is just as evident that for the very same reasons the Phœnician organic symbols were brought down to simple outlines. Through all the centuries and down to our days we see the constant aims not only to simplify the forms, but also, wherever practicable, to beautify them.

If we do not admit that the originator of our letters simply copied the hieratics, we are in duty bound to give reasons which can lay claim to originality.



This we see, first, in the limit of symbols to the fundamental sounds of the language; secondly, in the attempt to show the resemblance between the forms of the signs and the organs of speech as has been shown in the treatise. The only exceptions are the signs for H and R (see text, pages 23 to 33).


When considering such a simplification of the means of written communication, as compared with the endless number of hieratics, I cannot but see in this simplification alone a victorious originality. Let us compare the numeric pro-

portion of the two kinds of letters. Thus, in the decree of Canope, according to Sam. Sharpe, 125 signs are given, which, it is true, are used not only phonetically, but also symbolic or syllabically. Champolion gives 260 of these signs, and Solvini even 300. The Austrian Government Printing Office has 130 types of the same category at its disposal.

The numerical proportion in the papyrus Prisse, which is ascertained by Rougé as the source of our letters, was certainly no small one. Unfortunately, I have not been able to examine it, as not a single copy of it could be found in any of our libraries. All that I could find of the papyrus Prisse was a fac simile of page 16, taken from Dr. Ferd. Justis "History of the Oriental Nations," a reproduction of the same, and a few lines from the Ebers papyrus are laid before our readers with the view to give them an idea of the characteristic features of this kind of letters. But in order to make an exhaustive examination and comparison of the different forms, it was necessary to examine voluminous works, and I, therefore, undertook to compare the letters given by Rougé with those of the Ebers papyrus, the Harris papyrus, and other shorter inscriptions. The two papyri alone contain in all 189 tables, with more than 100,000 signs. The following was the result:



I examined line by line, having Rougé's alphabet (see Table II) by my side, and could not find a single sign which had the most distant similarity to the sign for the letter B. The sign for *Theth* could not be discovered anywhere, just as little as Z. Let us now examine the few signs which are specially pointed out as being of hieratic origin. These are,


for instance, the symbol for R hieratic , Phœnician 


The first-mentioned form originates from the hieroglyphic symbol for the mouth  *ro*, and phonetically standing for



R. We find the hieratic form, either open or closed, just as a writer in using a broad pen saw fit to make the ending stroke longer or shorter. It therefore has not the significance of a so-called book-staff as is used in the Phenician letters. We now ask, In what does such a similarity consist as to justify the origin from hieratic form? Can the elliptical be considered identical with the circular form? In that case it might be maintained that the form of the mouth and eye-ball were the same. How about the supposed similarity of the *Shin* sign with the hieratic sign? The last-mentioned has evidently been taken from the hieroglyphic sign for garden, and as the phonetic sign for *sh* as shown by the figure

, hieratic 

The Phenician sign for *Shin* appears at first in the form of the upper incisors , but soon loses this symbolic representation and subsequently appears in the form of our

, indicating better in this shape its dental character.

On what is a similarity with the hieratic based in this case? There is nothing to justify such a supposition but the accidental presence of the three strokes. It so happened, however, that in this very case the person who named the letters of the alphabet was enabled to retain the symbol for the sibilant.

It would be useless to make further comparisons. We would advise those who so strongly insist on the copying from the hieratics to take the trouble to study the sounds produced by pronouncing our letters; to study closely the positions and movements of our organ of speech, and compare them with the signs in our table.<sup>1</sup>

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<sup>1</sup> I think that one of the strongest proofs for the correctness of our supposition must be found in the fact that the sounds of our letters can be read from our organ of speech, by which effort alone deaf-mutes can be

The opinion which once prevailed, that the Phenician letters were likewise pictorial representations of the objects named, as is the case in the hieroglyphics, has been abandoned long since. The naming of the letters of the alphabet was certainly not done by the originator of the letters, but is of much later date, and was intended as a mnemotechnic aid in learning the A, B, C. This opinion is now considered as an incontrovertible fact. It is very strange, however, that after all these antiquated views have been abandoned, the development of our prototypes is still considered as an insolvable problem. They cannot rid themselves of the idea that some sort of models or types were used. This denial of the possibility of an original conception and solution of the problem means simply this: that at that time no one was supposed capable of a rational thought. These sceptics forget that even the oldest inscriptions which have been discovered are probably several centuries younger, and consequently differ greatly from the original types, and that, therefore, we must seek the fundamental idea which furnished the motives for the forms of letters. People are apt to forget that what we see are rude sketches, and that we are not justified in adhering to them too strictly. We must be glad if these sketches permit us to draw some conclusion as to the motives for shaping them; but in spite of this sketchy character, no one is justified in declaring the original types as *arbitrary* signs, as even some learned men have done in our days.

The fact that the forms of letters can undergo great changes is illustrated in a very striking manner by the Roman letters. If we did not have some knowledge of the various stages through which these letters passed before they reached their present form, nothing would be easier as to explain

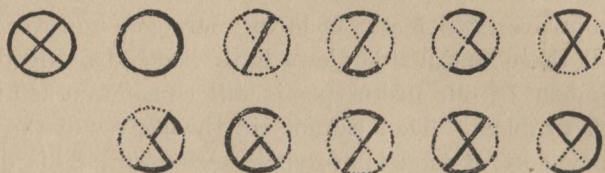
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taught to speak. We who are in full possession of healthy organs of hearing, do not notice the movements of our organs of speech, while a trained deaf-mute reads the words, and not merely disconnected sounds, from the movement of our lips.



their shape as the result of a geometrical construction (see pages 37 to 39.)

An instance of such geometrical construction is furnished by the Indian figures, erroneously termed Arabic. These Indian signs for the figures have developed from the shape of a circle with two diameters crossing each other :



0123456789

It is, of course, to be understood that this monogrammatic construction only furnished the idea for the development of the signs for the figures. The reader will observe that the strokes which have been changed to curves, nevertheless correspond to the form of construction. Even this irrefutable explanation of the construction of the Indian figures is considered in a sceptic manner by many archæologists, whilst the absurd explanation of the Roman sign for the figure five (V) as the symbol of the hand is considered as an established fact. If we asked these men for a proof of their opinion, they state that the enumeration of the units owes its origin to the manner of enumerating them by counting the fingers, and that consequently when five is reached, which finishes one hand, the figure must be considered as a symbol for the hand, whilst an unbiassed observer cannot discover anything else but the upper half of the sign for the figure ten [  $\times$  ], a construction which has been handed down to the Romans from the Etruscans. The origin of this sign for the figure ten ( $\times$ ) must likewise be traced to a practical

procedure, which even at this day is followed in keeping tally, as in summing up every tenth stroke is crossed,

////////X////////X// , and whereby it becomes much easier to control the enumeration.

But such simple, rational solutions are not to the taste of the sceptics, who prefer mysterious origins hidden in the darkness of time, because thus their ingenious solutions appear all the more learned. If these expounders would only strictly adhere in their investigations to the *How*, *Why*, and *Whence*, they could not fail eventually to reach the true facts in the case. What, for instance, is more natural than to suppose that after the founder of the alphabet had formed the resolution to create a system of letters, he looked for some simple means for carrying it out? The Egyptian system of letters was much too elaborate for him; he did not want to depict hundreds of objects as they had done. He conceived the idea of constructing his letters in the simplest manner, and of reducing them to the most necessary sounds of his language. The next question was, what signs would be best calculated to call the attention of the observer to the apparent values of the sounds? And we now ask, where could he find better models than those furnished by the configurations of our organ of speech?

But such simple solution of the problem is not what is wanted. The mistake is that people do not put themselves in the place of the creator of the letters, and, to speak professionally, do not ask, who was this genius? Nothing but simply a draughtsman. However this does not imply the supposition that the draughtsman must in his own creations follow the ideas indicated by well-known objects. Thus, for instance, I consider it as absolutely certain that the reformer of our present form for B had a correct idea of the symbol for this letter, and, therefore, he succeeded in producing the picture of lips still more distinctly. A similar improvement

may also be observed in the **€** form, as well as in the



form for j [  $\text{ɿ}$  ] if we pay attention to the positions and sensations of our organ of speech. (See text and table, pages 20 to 25.)

I can give no better advice to the student of the origin of the letters than, as has already been mentioned, to make a critical examination of his own organs of speech, and to compare his sensations caused by the different intonations with the symbolic representations of the signs for the various sounds. Only in this way is it possible to fully understand the prototypes of the Phenician signs for the various sounds. Any one who waits for historical proofs in the solution of this problem will wait in vain. Generations after generations passed away before man succeeded in recording historical events through the means of written words.

By this time the original forms of the letters had changed so much that it became very difficult to decipher these forms from the practically simplified forms. The eye of the artist is better qualified to trace the original form than the paleographer in his laborious researches among the ancient monuments.

Let us hope we have succeeded in finding willing ears in those who are not blinded by prejudice, for our investigation, which leads them to the source from which all knowledge drew its creative power, and to these readers we think we have rendered a welcome service by our explanation of the origin of our letters.

*Translation of the hieroglyphic appendix from the Ebers  
Papyrus (see Table III).*

*Introduction to the hermetical Book of Medicines.*

FIRST LINE.

This begins the book of the preparation of the medicines  
for all parts of the body of a patient. I have come from  
Heliopolis with the great

SECOND LINE.

Het āāt, the Lord of protection, the ruler of eternity and of  
salvation. I have come from Sais with motherly

THIRD LINE.

Gods, who afforded me their protection. Formulas were  
given to me by the Lord of the universe to remove the suf-  
ferings caused

FOURTH LINE.

by the gods, of every fatal diseases.















